

UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF MISSOURI  
SOUTHEASTERN DIVISION

CARL TRACY SCHWAB, et al.,        )  
  )  
Plaintiffs,                         )  
  )  
vs.                                 )      Case No. 1:04CV00025 RWS  
  )  
NISSAN NORTH AMERICA, INC.,     )  
et al.,                             )  
                                       )  
Defendants.                        )

**MEMORANDUM AND ORDER**

This is a product liability case arising out of a rollover crash of a 2002 Nissan Xterra vehicle. Plaintiffs have identified three experts to offer opinions regarding the alleged propensity of the 2002 Nissan Xterra roof to collapse during foreseeable rollover accidents. Plaintiffs' experts conducted two tests: A two-sided roof strength test and a Jordan Rollover System ("JRS") test.

The Nissan defendants<sup>1</sup> have moved to exclude evidence of both the two-sided test and the JRS test and any opinions based on these tests pursuant to Rule 702 of the Federal rules of Evidence.

The Nissan defendants argue that the two-sided test should be excluded

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<sup>1</sup> Nissan North America, Inc., Nissan Motor Company Ltd., and Nissan Technical Center North America, Inc.

under Rule 702 because the test:

- incorporates parameters arbitrarily selected by plaintiffs' experts;
- has not been validated against real world data;
- has not been subjected to meaningful peer review or publication; and
- is not generally accepted in the field of automotive engineering.

The Nissan defendants argue that the JRS test should be excluded under Rule 702 because the test:

- is unreliable in its design;
- lacks validation and a well defined pass fail criteria;
- was unreliable in its execution;
- has not been subjected to meaningful peer review or publication; and
- is not generally accepted in the field of automotive engineering.

I held four days of hearings on these issues. Oral argument and evidence was presented by the parties on October 23, 2006, February 7, 2007, March 14, 2007 and May 11, 2007.

Based on the evidence and argument presented at the hearings, I find that the two-sided test and the JRS test should be excluded pursuant to Federal Rule of Evidence 702.

## **BACKGROUND**

Carl Schwab was driving a 2002 Nissan Xterra on December 24, 2002. The car left the roadway and rolled over. Mr. Schwab sustained severe injuries in the rollover accident. His complaint alleges state law product liability, negligence and breach of warranty claims based on an alleged propensity of the 2002 Nissan Xterra's roof to collapse during foreseeable rollovers.

Plaintiffs have retained Donald Friedman, Dr. Jack Bish and Dr. George Rechnitzer to conduct tests and offer opinions in support of plaintiffs' claims. The Nissan defendants do not challenge the credentials of the plaintiffs' experts. The Nissan defendants challenge the tests conducted by plaintiffs' experts and their resulting opinions based on these tests.

## **STANDARD FOR ADMISSIBILITY OF EXPERT TESTIMONY**

Federal Rule of Evidence 702 provides that if expert testimony "will assist the trier of fact to understand the evidence or to determine a fact in issue" an expert may testify where "(1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case."

Trial courts serve as gate keeper to "ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable." See Daubert v.

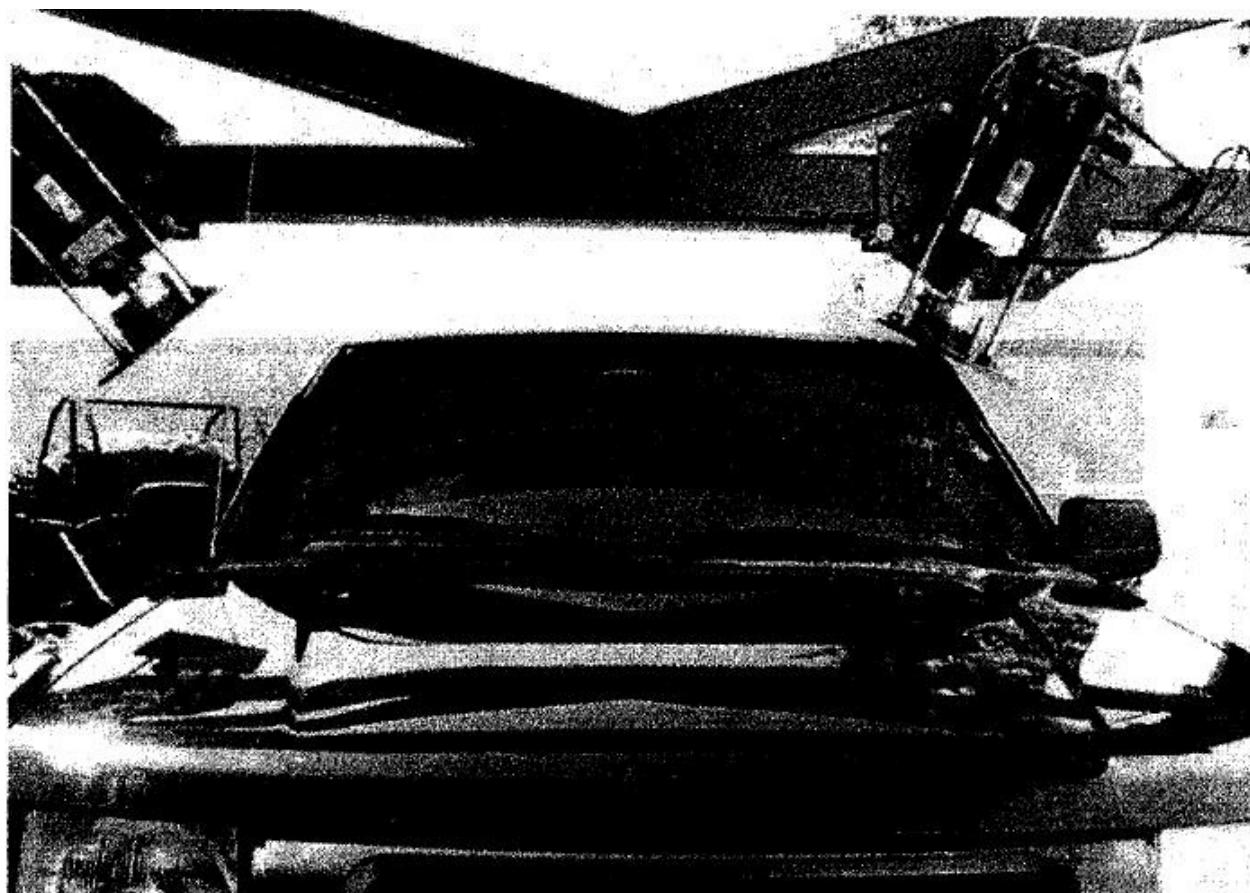
Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 589 (1993); see also Kumho Tire Co. v. Carmichael, 526 U.S. 137, 141 (1999) (“We conclude that Daubert’s general holding -- setting forth the trial judge’s ‘gatekeeping’ obligation -- applies not only to [expert] testimony based on ‘scientific’ knowledge, but also to [expert] testimony based on ‘technical’ or ‘other specialized’ knowledge.”) In exercising the gatekeeper function, the trial court must just make a “preliminary assessment of whether the reasoning or methodology . . . properly can be applied to the facts in issue,” focusing specifically on the methodology and not the conclusion. See Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 593 (1993)

The starting point for an examination of any expert testimony is in the nonexclusive list of factors set forth in Daubert:

- (1) whether the theory or technique can be and has been tested;
- (2) whether the theory or technique has been subjected to peer review and publication;
- (3) the known or potential rate of error in using a particular scientific technique and the existence and maintenance of standards controlling the technique’s operation; and
- (4) whether the theory or technique has been generally accepted in the particular field.

Daubert, 509 U.S. at 593-94, 113 S. Ct. at 2796-97.

## **TWO-SIDED TEST ANALYSIS**



### **A. Description of the Two-sided Test.**

The two-sided test conducted by plaintiffs' experts uses a hydraulic ram to press a flat 12 inch by 24 inch steel plate, or "platen," against a stationary vehicle's roof. A platen is first applied to the front edge of the roof on the driver's side at an angle of 25 degrees from vertical. The platen is pushed against the roof long enough and hard enough to crush it five inches. Instruments record the force

applied to the roof during the test. The process is then repeated on the passenger side of the vehicle, except that the platen is applied at an angle of 40 degrees from vertical, rather than 25 degrees.

The two-sided test has similarities to the federally approved Federal Motor Vehicle Safety Standard (FMVSS) 216 Test.<sup>2</sup> However, as discussed below, the two-sided test deviates significantly from the FMVSS 216 test.

**B. The two-sided test incorporates arbitrary parameters.**

Based on the evidence and argument during the four days of hearings, I find that Plaintiffs failed to establish that the parameters of the two-sided test are an appropriate method for testing roof strength.

The federally approved FMVSS 216 test uses a plate that is 30 inches by 72 inches in size. The two-sided test conducted by Plaintiffs' experts used a much smaller platen which is only 12 inches by 24 inches. The FMVSS larger platen distributes force across the A, B and C pillars<sup>3</sup> of the automobile frame. The distribution of the force across the A, B and C pillars tests the strength of the roof across the length of its edge. The two-sided tests conducted by Plaintiff's experts concentrates on the A pillar only. In other words, their two-sided test applies

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<sup>2</sup> The FMVSS216 test is described at 49 C.F.R. § 571.216.

<sup>3</sup> The A pillars are on the sides of the windows. The B and C pillars move sequentially back from there.

force to a much smaller portion of the vehicle roof. There is no showing by Plaintiffs that contact with the ground in a rollover event, generally or in this case specifically, would be concentrated on such a small portion of the vehicle roof.

The reliability of the two-sided test conducted by Plaintiffs' experts is also compromised because the hydraulic ram applying the pressure to the platen is attached to the front of the platen rather than the center of the platen. This causes the far end of the platen to flex, or bend away, from the vehicle roof during the test. When the platen bends or flexes, even less area of the roof is impacted and the force of the hydraulic ram is not evenly distributed across the platen. The result of the flexing or bending of the platen is to further concentrate the force applied by the hydraulic ram to an even smaller area of the roof. There is no showing by plaintiffs that the roadway or ground would flex or bend in a real world rollover event.

Based on the evidence introduced at the hearings, the smaller platen results in more dramatic deformation of the vehicle without any correlation to real world events.

Not only is the two-sided test generally flawed because of its arbitrary parameters but in this case the two-sided test was *not* conducted consistent with the facts of the case. Plaintiffs' expert testified that in the accident on December

24, 2002 Schwab's Xterra rolled with the passenger side of the vehicle hitting the ground first. When plaintiffs conducted the two-sided test here they impacted the driver's side first.

Plaintiffs have failed to establish by reliable scientific evidence that the parameters of the two-sided test are appropriately correlated to real world events or to the specific facts in this case.

**C. The two-sided test has not been validated.**

The plaintiffs have the burden to establish that their two-sided test can be validated through sound scientific methodology.

Plaintiffs claim that their two-sided test is valid but their experts have not attempted to correlate the two-sided test results to any real world data in order to validate the two-sided test as a reliable measure of relevant roof strength.

Q. Now, in terms of validation of the two-sided roof strength test methodology, has Xperts attempted to do any correlation between the test results on the two-sided test and real world field accident data? And by "field accident data," I mean in established report databases like in NASS or FARS or state databases.

A. No, we haven't.

Bish Depo. 54:16-22; see also id. at 30:19 - 31:11. As I read that question and answer in plain English it means that it is possible to quantitatively evaluate the forces involved in real-world rollovers and compare those forces to plaintiffs'

experts' tests, but that plaintiffs' experts have not done so.

Validation requires a more rigorous scientific analysis than the "I say it's valid, therefore it must be valid" statement from an expert. To satisfy the reliability requirement plaintiffs must establish by a preponderance of the evidence that the methodology is *scientifically* valid. Daubert 509 U.S. at 589-90. That requirement includes a showing that the methodology is generally applied properly to the facts at issue in this case based on *scientifically accepted methodology*.

The United States Supreme Court has cautioned trial judges not to admit opinion evidence that is "connected to existing data only by *ipse dixit* of the expert," or that it is valid only because the expert says it is valid. General Electric Co. v. Joiner, 522 U.S. 136, 146 (1997). Because the plaintiffs' experts have not attempted to correlate their two-sided test results to any real world data I cannot find that the two-sided test has been validated.

**D. The two-sided test has not been subjected to meaningful peer review.**

In determining whether expert testimony is "scientific knowledge" worthy of admission, a "pertinent consideration is whether the theory or technique has been subjected to peer review and publication." Daubert, 509 U.S. at 593.

Plaintiffs' experts cite to one two-page paper as evidence of peer review of

the two-sided test. The two-page paper cited by plaintiffs as a peer reviewed article does not include any underlying supporting data that would be necessary to conduct a rigorous review of the test methodology. Without any of the underlying supporting data there could not be any meaningful peer review by anyone in the automotive industry.

Even if the two-page paper could be found to be peer reviewed, it would not be helpful in this case because the paper references a two-sided test where the roll angles used were not the same as the roll angles used when the two-sided test was performed on the Xterra in this case. In other words, Plaintiffs have not established that the tests actually conducted in this case are consistent with the parameters set forth in the article.

The plaintiffs have failed to present evidence that the two-sided test, as conducted, has been subjected to any meaningful peer review and publication.

**E. The two-sided test is not generally accepted in the automotive engineering industry**

The two-sided test figure has not been adopted by any other car manufacturer or regulatory authority anywhere in the world. See Bish Depo. 109:10-12. One of plaintiffs' experts candidly admitted that he did not know if there was any generally accepted substitute for the official FMVSS 216 test. See

Rechnitzer Depo. 46:9-24 (“I think there have been a number of protocols developed. When you say “generally accepted,” that’s a very broad statement because different car manufacturers do different things. So I don’t know if there is such a thing as a generally accepted [test protocol].”)

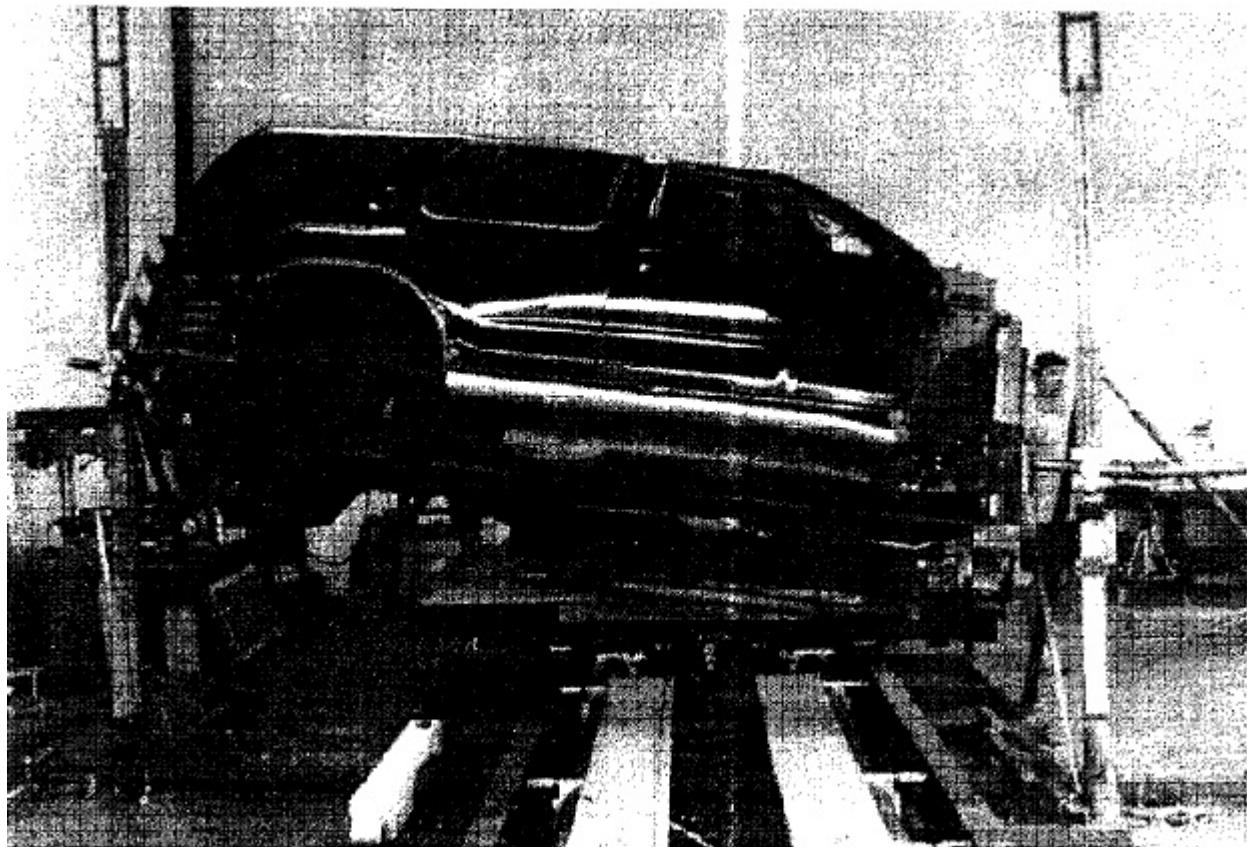
The plaintiffs have failed to present evidence that the two-sided test is generally accepted in the automotive engineering industry.

**F. The two-sided test must be excluded pursuant to Federal Rule of Evidence 702.**

My examination of the evidence presented during the four days of hearings leads me to conclude that the “two-sided” test is not based on reliable scientific principles and methodology. The two-sided test has never been validated, it has not been subjected to meaningful peer review and it has not been accepted by any other experts or entities within the automotive engineering industry.

There is no basis for me to make a finding that the two-sided test results would assist the trier of fact in this case. As a result, the evidence of the two-sided test and any opinions based on the test will be excluded pursuant to Federal Rules of Evidence 702.

## **JORDAN ROLLOVER SYSTEM TEST ANALYSIS**



### **A. Description of the Jordan Rollover System test (JRS) Procedure.**

The Jordan Rollover System Test suspends an entire vehicle or a portion of a vehicle (sometimes referred to as a “test buck”) over a track. The JRS rotates the vehicle on a spit as a simulated road surface moves down the track. The JRS then drops the spit allowing the vehicle to strike the simulated road surface.

**B. The JRS test incorporates arbitrary parameters.**

Based on the evidence and arguments during the four days of hearings I find that the drop height, initial impact angle, roll over angle and other test parameters of the JRS test in the test case were not based on any established study of rollover accidents in general or Mr. Schwab's accident in particular. The JRS test parameters may reflect the "best guess" of the proffered experts but the test parameters are not the result of any identifiable scientific methodology.

Another limiting factor in the JRS test procedure is the simulated road surface. The JRS test road surface is not made of concrete or solid ground; rather it is constructed of a sheet of plywood covered by sandpaper material. This simulated road surface as used in the JRS test does not simulate real world events.

Plaintiffs' experts concede that the JRS simulated road surface slows down upon impact with the vehicle. A road surface in a real world rollover event does not "slow down." The slowing of the simulated road surface means the vehicle's roof contacts the "ground" for an extended period of time. Anything that extends the length of time a vehicle is in contact with the simulated "ground" allows for more deformation to the vehicle structure. Plaintiffs' experts have not attempted to quantify or account for this deviation in the JRS test they conducted in this case. This effect is magnified because the vehicle impacts the road surface in the test

more than once.

In addition, plaintiffs' experts placed an accelerometer on the driver's side of the JRS test buck, but they did not place an accelerometer on the passenger's side. This is significant because in Schwab's accident the passenger's side, not the driver's side, struck the roadway surface first.

Plaintiffs have failed to establish by reliable scientific evidence that the parameters of the JRS test are appropriately correlated to real world events or to the specific facts in this case.

**C. The JRS test has not been validated.**

The plaintiffs have the burden to establish that the JRS test can be validated through sound scientific methodology.

Plaintiff's experts admit that there is no validation report or study for the JRS. Validation requires a more rigorous scientific analysis than the "I say it's valid, therefore it must be valid" statement from their expert.

As discussed above, the Supreme Court has cautioned trial judges not to admit opinion evidence "that is connected to existing data only by the *ipse dixit* of the expert." General Electric Co., 522 U.S. at 146. In other words, the mere say so of plaintiffs' expert that the JRS test is valid is not enough for me to find the test is valid. The plaintiffs have failed to meet their burden to establish that the

methodology of the JRS test is scientifically valid.

**D. The JRS test actually conducted in this case is not reliable.**

The Xterra vehicle used by plaintiffs' experts in this case was not a complete vehicle. Rather the tests were conducted on a "test buck." The test buck is not a complete Xterra vehicle, rather it is an Xterra without the engine compartment. Even more importantly, the test buck used in this case was *already damaged* because it had already been crushed on both sides by thousands of pounds of force during the two-sided test. During the two-sided test, the test buck's roof was crushed, and the windshield and front driver's side window were broken. Additionally, the test buck's roof impacted the simulated ground surface twice in each JRS test, so after the JRS tests were completed, each side of the roof had already been quasi-statically crushed once and slammed down onto the simulated road surface twice.

The JRS test cannot reliably evaluate vehicle rollover performance if the vehicle it is evaluating has already been crushed repeatedly by a hydraulic ram. The JRS test is even less reliable after the vehicle has been crushed by a hydraulic ram and slammed on its roof three more times.

Even if the JRS test was admissible under Federal Rule of Evidence 702, the JRS test in this case was compromised by the already severely damaged test buck.

Finally, the failure to attempt to replicate Mr. Schwab's accident eliminates any remaining argument for the admissibility of the JRS test in this case.

**E. The JRS test has not been subjected to meaningful peer review.**

In determining whether expert testimony is "scientific knowledge" worthy of admission, a "pertinent consideration is whether the theory or technique has been subjected to peer review and publication." Daubert, 509 U.S. at 593.

The JRS test has been discussed in a small number of publications but there is no evidence before me that these articles have been subjected to peer review. There is not sufficient data in any of the articles presented into evidence for any third party to peer review JRS test.

The plaintiffs have failed to present evidence that the JRS test has been subjected to any meaningful peer review and publication.

**F. The JRS test is not generally accepted in the automotive engineering industry.**

The evidence established that none of the automobile manufacturers or the National Highway Transportation Safety Administration has inspected or reviewed the JRS. There is no evidence that the JRS test has been accepted by anyone except the plaintiffs experts.

More specifically, in 2005, the National Highway Transportation Safety

Administration, citing lack of evidence of JRS test performance measures, practicality and relevance to real-world injuries, expressly declined to propose adopting the JRS test. See U.S. Department of Transportation Docket No. NHTSA-2005-22143-1 at 62 (Aug. 19, 2005).

The plaintiffs have failed to present evidence that the two-sided test is generally accepted in the automotive engineering industry.

**G. The JRS test must be excluded pursuant to Federal Rule of Evidence 202.**

My examination of the evidence presented during the four days of hearings causes me to conclude that the JRS test is not based on reliable scientific principle and methodology. The JRS test has never been validated. It has not been subjected to meaningful peer review and it has not been accepted by any automotive engineering entity. As a result the JRS test and all opinions based on the test will be excluded pursuant to Federal Rule of Evidence 702.

Accordingly,

**IT IS HEREBY ORDERED** that Defendants' Motion to Exclude Certain Evidence and Testimony [#156] is **GRANTED** as it relates to Defendants' original Motions #97 and #105.

**IT IS FURTHER ORDERED** that plaintiffs are granted **fourteen (14)**

days from the date of this order to identify any opinions offered by their experts that they believe are not limited by this ruling.

**IT IS FURTHER ORDERED** that defendants are granted fourteen (14) days after plaintiffs' identification to respond.



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RODNEY W. SIPPEL  
UNITED STATES DISTRICT JUDGE

Dated this 8th day of June, 2007.